Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1.   (Currently Amended) A method of conditioning a composite signal, the composite signal being formed by introducing at least a portion of a first signal into a second signal, comprising:

estimating a signal characteristic of said first signal and a signal characteristic of said composite signal;

conditioning the composite signal, if the estimated signal characteristic of said first signal and of said composite signal are above a predetermined level; [[and]]

bypassing the conditioning, if the estimated signal characteristic of said first signal and said composite signal are below the predetermined level; and

controlling convergence of an adaptive filter responsive to the estimated signal characteristics.

2.   (Cancelled)

3.   (Cancelled)

4.   (Original) The method of claim 1 wherein the conditioning of the composite signal comprises adaptively filtering the first signal, and recovering the second signal by subtracting the filtered first signal from the composite signal.

5.   (Cancelled)

6.   (Previously Presented) The method of claim 4 wherein the characteristic estimation comprises estimating a return loss between the composite signal and the first signal, estimating a return loss enhancement, the return loss enhancement comprising a reduction in power of the composite signal due to the signal conditioning in the absence of the second signal, and wherein the conditioning of the composite signal further comprises adjusting the filter adaptation as a function of at least one of the estimated return loss and the estimated return loss enhancement.

7.   (Previously Presented) A method of conditioning a composite signal, the composite signal being formed by introducing at least a portion of a first signal into a second signal, comprising:

estimating a characteristic of at least one of said first and composite signals; and

selectively conditioning the composite signal, the selection of whether to condition the composite signal being based on the estimated characteristic, wherein the conditioning of the composite signal comprises adaptively filtering the first signal, and recovering the second signal by subtracting the filtered first signal from the composite signal, and

wherein the characteristic estimation, comprises:

estimating a first power level of the first signal;

estimating a second power level of the composite signal;

estimating a return loss between the composite signal and the first signal by dividing the first power level by the second power level;

estimating a third power level of the recovered second signal; and

estimating a return loss enhancement by dividing the second power level by the third power level;

wherein the conditioning of the composite signal further comprises adjusting the filter adaptation as a function of at least one of the return loss and return loss enhancement.

8.   (Previously Presented) The method of claim 4 further comprising processing the recovered second signal when information is detected in the first signal but not in the second signal.

9.   (Currently Amended) A method of cancelling a far end echo from a near end signal, comprising:

estimating an energy level of the far end echo;

cancelling the echo from the near end signal, if the estimated energy level of the far end echo is above an audible level; [[and]]

bypassing the cancelling, if the estimated energy level of the far end echo is below the audible level; and

controlling convergence of an adaptive filter responsive to the estimated signal characteristics.

10.   (Cancelled)

11.   (Original) The method of claim 9 wherein the characteristic estimation comprises estimating a power level of the far end signal, and estimating an echo return loss between the far end signal and the near end signal, and wherein the echo is cancelled from the near end signal if the estimated power level of the far end signal minus the echo return loss is greater than a threshold.

12.   (Previously Presented) The method of claim 9 wherein the characteristic estimation comprises estimating a power level of the far end signal, estimating an echo return loss between the far end signal and the near end signal, and estimating a power level of the near end signal, wherein the selection of whether to cancel the echo from the near end signal is based on the estimated power levels and the estimated echo return loss.

13.   (Original) The method of claim 9 wherein the echo cancellation comprises adaptively filtering the far end signal and subtracting the filtered far end signal from the near end signal.

14.   (Previously Presented) The method of claim 9 wherein the characteristic estimation comprises estimating a power level of the far end signal, estimating an echo return loss between the far end signal and the near end signal, and estimating a power level for noise on the near end signal without the echo, and wherein the echo is canceled from the near end signal when the power level of the far end signal minus the echo return loss is greater than both a threshold of hearing and the power level for the noise minus about 10 dB.

15.   (Previously Presented) The method of claim 13 wherein the characteristic estimation comprises estimating an echo return loss between the far end signal and the near end signal, and estimating an echo return loss enhancement between the near end signal and the near end signal without the echo, and wherein filter adaptation is a function of at least one of the echo return loss and echo return loss enhancement.

16.   (Previously Presented) The method of claim 15 wherein the filter adaptation comprises using an adaptation step size of one-fourth when the echo return loss enhancement is in the range of 0-9 dBm.

17.   (Previously Presented) The method of claim 15 wherein the filter adaptation comprises using an adaptation step size of 1/32 when a combination of the estimated echo return loss and the echo return loss enhancement is greater than 33-36 dB.

18.   (Previously Presented) The method of claim 15 wherein the filter adaptation comprises using an adaptation step size of 1/16 when a combination of the estimated echo return loss and the echo return loss enhancement is in the range of 23-33 dB.

19.   (Previously Presented) The method of claim 13 further comprising detecting information in the near end signal, wherein the filter adaptation comprises limiting the filter adaptation when the information is detected and the filter adaptation is converged.

20.   (Previously Presented) The method of claim 13 wherein the filter adaptation is limited when the filter adaptation has been active for a period longer than one second from an off hook transition of a telephony device connected between the far end signal and the near end signal.

21.   (Previously Presented) The method of claim 13 wherein the filter adaptation is limited when the filter adaptation has been active for a period longer than one second after filter adaptation initialization.

22.   (Previously Presented) The method of claim 19 wherein the filter adaptation comprises using an adaptation step size of 1/32 when the information is detected and the filter adaptation is not converged.

23.   (Previously Presented) The method of claim 13 wherein the characteristic estimation further comprises estimating a power level of the far end signal, and estimating a power level for noise on the near end signal without the echo, and wherein the filter adaptation comprises using an adaptation step size of 1/4 when the estimated power level of the far end signal exceeds the estimated power level of the noise by at least 24 dB.

24.   (Previously Presented) The method of claim 13 wherein the characteristic estimation comprises estimating a power level of the far end signal, and estimating a power level for noise on the near end signal without the echo, and wherein the filter adaptation comprises

using an adaptation step size of 1/8 when the estimated power level of the far end signal exceeds the estimated power level of the noise by at least 18 dB.

25.   (Previously Presented) The method of claim 13 wherein the characteristic estimation further comprises estimating a power level of the far end signal, and estimating a power level for noise on the near end signal without the echo, and wherein the filter adaptation comprises using an adaptation step size of 1/16 when the estimated power level of the far end signal exceeds the estimated power level of the noise by at least 9 dB.

26.   (Previously Presented) The method of claim 9 further comprising detecting information in the far end signal, detecting information in the near end signal, and processing the near end signal when information is detected in the far end signal and not in the near end signal.

27.   (Original) The method of claim 9 wherein the characteristic estimation comprises estimating a power level of the far end signal, estimating a power level of the near end signal, estimating a power level of a near end signal without the echo, estimating a power level of noise on the far end signal, and selectively non linear processing the near end signal, the selection as to whether to non linear process the near end signal being based on the estimated power levels.

28.   (Original) The method of claim 27 further comprising setting a first decision variable as a function of the estimated power level of the far end signal, setting a second decision variable as a function of the power level of the near end signal without the echo, setting a third decision variable as a function of the estimated power level of the far end signal and the near end signal without the echo, wherein the is near end signal is non linear processed when at least of the two decision variables meet a respective criteria.

29.   (Previously Presented) The method of claim 28 wherein the first decision variable is set when the estimated power level of the far end signal is at least 6 dB greater than the

estimated power level of the noise on the far end signal, and the estimated power level of the far end signal minus an estimated echo return loss between the far end signal and the near end signal is at least 6 dB greater larger than the estimated power level of the near end signal.

30.   (Original) The method of claim 27 wherein the second decision variable is set when the estimated power level of the near end signal without the echo is at least 9 dB less than the estimated power level of the near end signal.

31.   (Original) The method of claim 27 wherein the third decision variable is set when the estimated power level of the far end signal minus the estimated power level of the near end signal without the echo is greater than a threshold power level.

32.   (Currently Amended) A signal conditioner for conditioning a composite signal, the composite signal being formed by introducing at least a portion of a first signal into a second signal, comprising:

a first signal characteristic estimator for estimating a signal characteristic of the first signal;

a second signal characteristic estimator for estimating a signal characteristic of the composite signal;

a canceller to recover the second signal from the composite signal, if the estimated signal characteristic of the first signal and of the composite signal are above a predetermined level; [[and]]

a bypass to selectively enable the canceller, if the estimated signal characteristic of the first signal and the composite signal are below the predetermined level; and

a filter adapter for controlling convergence of an adaptive filter responsive to the estimated signal characteristics.

33.   (Cancelled)

34.   (Cancelled)

35.   (Previously Presented) The signal conditioner of claim 32 further comprising a power estimator to estimate a maximum power level and an average power level of the first signal, and adaptation logic to estimate a return loss between the first signal and the composite signal, wherein the bypass enables the canceller as a function of at least one of the estimated maximum power level, the estimated average power level, the estimated return loss.

36.   (Previously Presented) A signal conditioner for conditioning a composite signal, the composite signal being formed by introducing at least a portion of a first signal into a second signal, comprising:

a canceller to recover the second signal from the composite signal;

a bypass to selectively enable the canceller;

a power estimator to estimate a maximum power level and an average power level of the first signal; and

adaptation logic to estimate a return loss between the first signal and the composite signal, wherein the bypass enables the canceller as a function of at least one of the estimated maximum power level, the estimated average power level, the estimated return loss, and

wherein the bypass enables the canceller when the estimated maximum power level of the first signal minus the estimated return loss is greater than a threshold.

37.   (Original) The signal conditioner of claim 35 further comprising a second power estimator to estimate an average power level of the composite signal, wherein the adaptation logic estimates the return loss by dividing the estimated average power level of the first signal by the estimated average power level of the composite signal.

38.   (Original) The signal conditioner of claim 37 wherein the bypass enables the canceller when the estimated maximum power level of the first signal minus the estimated return loss is at least 8 dB greater than the estimated power level of the composite signal.

39.   (Previously Presented) The signal conditioner of claim 32 wherein the canceller further comprises   an adaptive filter to filter the first signal, and a combined operator to subtract the filtered first signal from the composite signal to recover the second signal.

40.   (Previously Presented) The signal conditioner of claim 39 further comprising a processor, and adaptation logic which invokes the processor to suppress the recovered second signal when information is detected in the first signal but not in the composite signal.

41.   (Original) The signal conditioner of claim 40 wherein the information includes voice.

42.   (Original) The signal conditioner of claim 39 further comprising a first power estimator to estimate a maximum power level of the first signal, a second power estimator to estimate a noise power level for the recovered second signal, and adaptation logic to estimate a return loss between the first signal and the composite signal, wherein the bypass enables the canceller when the estimated maximum power level of the first signal minus the estimated return loss is greater than both a threshold of hearing and the estimated power level of the noise of the recovered second signal minus 8 dB.

43.   (Original) The signal conditioner of claim 39 further comprising a filter adapter to adjust the adaptation of the adaptive filter.

44.   (Original) The signal conditioner of claim 43 further comprising adaptation logic to estimate a return loss between the first signal and the composite signal, and a return loss

enhancement between the composite signal and the recovered second signal, the filter adapter adjusting the adaptation of the adaptive filter as a function of the estimated return loss and the estimated return loss enhancement.

45.   (Original) The signal conditioner of claim 44 further comprising a first power estimator to estimate a maximum power level and an average power level of the first signal, a second power estimator to estimate an average power level of the composite signal, a third power estimator to estimate an average power level and a noise power level for the recovered second signal, wherein the adaptation logic estimates the return loss and the return loss enhancement as a function of the estimated power levels.

46.   (Original) The signal conditioner of claim 45 wherein the adaptation logic estimates the return loss by dividing the average power level of the first signal by the average power level of the composite signal.

47.   (Original) The signal conditioner of claim 45 wherein the adaptation logic estimates the return loss enhancement by dividing the average power of the composite signal by the average power of the recovered second signal.

48.   (Previously Presented) The signal conditioner of claim 45 wherein the filter adapter causes the adaptive filter to have a filter adaptation step size of 1/4 when the estimated average power level of the first signal is 24 dB greater than the estimated power level of the noise of the recovered second signal.

49.   (Original) The signal conditioner of claim 45 wherein the filter adapter causes the adaptive filter to have a filter adaptation step size of about 1/8 when the estimated average power level of the first signal is18 dB greater than the estimated power level of the noise on the recovered second signal.

50.   (Original) The signal conditioner of claim 45 wherein the filter adapter causes the adaptive filter to have a filter adaptation step size of 1/16 when the estimated average power level of the first signal is 9 dB greater than the estimated power level of the noise on the recovered second signal.

51.   (Original) The signal conditioner of claim 44 wherein the filter adapter causes the adaptive filter to have an adaptation step size of 1/16 when a combination of the estimated return loss and the estimated return loss enhancement is in the range of about 23-33 dB.

52.   (Previously Presented) The signal conditioner of claim 44 wherein the adaptation logic limits the filter adapter when the adaptation logic detects information in the composite signal and the adaptive filter is converged.

53.   (Original) The signal conditioner of claim 52 wherein the information includes voice.

54.   (Previously Presented) The signal conditioner of claim 44 wherein the adaptation logic limits the adaptation of the adaptive filter when the adaptive filter has been active for a period longer than one second after an off hook transition of a telephony device coupled between the first signal and the composite signal.

55.   (Previously Presented) The signal conditioner of claim 44 wherein the adaptation logic limits the adaptation of the adaptive filter when the adaptive filter has been active for a period longer than one second after the adaptive filter is initialized.

56.   (Original) The signal conditioner of claim 44 wherein the filter adapter causes the adaptive filter to have an adaptation step size of 1/32 when the adaptation logic detects information in the composite signal and the adaptive filter is not converged.

57.   (Original) The signal conditioner of claim 44 wherein the filter adapter causes the adaptive filter to have an adaptation step size of one-fourth when the estimated return loss enhancement is in the range of 0-9 dBm.

58.   (Original) The signal conditioner of claim 44 wherein the filter adapter causes the adaptive filter to have an adaptation step of 1/32 when a combination of the estimated return loss and the estimated return loss enhancement is greater than 33 dB.

59.   (Previously Presented) The method of claim 1 wherein the characteristic estimation comprises estimating a power level of the first signal, and estimating an echo return loss between the first signal and the composite signal, and wherein the composite signal is conditioned echo if the estimated power level of the first signal minus the echo return loss is greater than a threshold.

60.   (Previously Presented) The method of claim 4 further comprising selectively limiting filter adaptation, the selection of whether to limit the filter adaptation being based on the estimated characteristic.

61.   (Previously Presented) The method of claim 60 wherein the filter adaptation is limited by disabling the filter adaptation.

62.   (Previously Presented) The method of claim 8 wherein the recovered second signal is processed by attenuation.

63.   (Previously Presented) The method of claim 8 wherein the processing of the recovered second signal is non-linear.

64.   (Previously Presented) The method of claim 13 further comprising selectively limiting filter adaptation, the selection of whether to limit the filter adaptation being based on the estimated characteristic.

65.   (Previously Presented) The method of claim 62 wherein the filter adaptation is limited by disabling the filter adaptation.

66.   (Previously Presented) The method of claim 19 wherein the limiting of the filter adaption comprises disabling the filter adaption.

67.   (Previously Presented) The method of claim 26 wherein the near end is processed by attenuation.

68.   (Previously Presented) The method of claim 26 wherein the processing of the near end signal is non-linear.

69.   (Previously Presented) The signal conditioner of claim 40 wherein the processor comprises a non-linear processor.

70.   (Previously Presented) The signal conditioner of claim 43 wherein the filter adapter limits the adaptation of the adaptive filter when the bypass does not enable the canceller.

71.   (Previously Presented) The signal conditioner of claim 69 wherein the filter adaptation is limited by disabling the adaptation of the adaptive filter.

72.   (Currently Amended) Computer-readable media embodying a program of instructions executable by a computer to perform a method of conditioning a composite signal, the composite signal being formed by introducing at least a portion of a first signal into a second signal, the method comprising:

estimating a signal characteristic of said first signal and a signal characteristic of said composite signal;

conditioning the composite signal, if the estimated signal characteristic of said first signal and of said composite signal are above a predetermined level; [[and]]

bypassing the conditioning, if the estimated signal characteristic of said first signal and said composite signal are below the predetermined level; and

controlling convergence of an adaptive filter responsive to the estimated signal characteristics.

73.   (Previously Presented) The computer-readable media of claim 72 wherein the characteristic estimation comprises estimating a power level of the first signal, and estimating an echo return loss between the first signal and the composite signal, and wherein the composite signal is conditioned echo if the estimated power level of the first signal minus the echo return loss is greater than a threshold.

74.   (Previously Presented) The computer-readable media of claim 72 wherein the conditioning of the composite signal comprises adaptively filtering the first signal, and recovering the second signal by subtracting the filtered first signal from the composite signal.

75.   (Previously Presented) The computer-readable media of claim 74 wherein the method further comprises selectively limiting filter adaptation, the selection of whether to limit the filter adaptation being based on the estimated characteristic.

76.　(Previously Presented) The computer-readable media of claim 75 wherein the filter adaptation is limited by disabling the filter adaptation.

77.　(Previously Presented) The computer-readable media of claim 74 wherein the characteristic estimation comprises estimating a return loss between the composite signal and the first signal, estimating a return loss enhancement, the return loss enhancement comprising a reduction in power of the composite signal due to the signal conditioning in the absence of the second signal, and wherein the conditioning of the composite signal further comprises adjusting the filter adaptation as a function of at least one of the estimated return loss and the estimated return loss enhancement.

78.　(Previously Presented) The computer-readable media of claim 74 wherein the characteristic estimation, comprises:

estimating a first power level of the first signal;

estimating a second power level of the composite signal;

estimating a return loss between the composite signal and the first signal by dividing the first power level by the second power level;

estimating a third power level of the recovered second signal; and

estimating a return loss enhancement by dividing the second power level by the third power level;

wherein the conditioning of the composite signal further comprises adjusting the filter adaptation as a function of at least one of the return loss and return loss enhancement.

79.　(Previously Presented) The computer-readable media of claim 74 wherein the method further comprises processing the recovered second signal when information is detected in the first signal but not in the second signal.

80.   (Previously Presented) The computer-readable media of claim 79 wherein the recovered second signal is processed by attenuation.

81.   (Previously Presented) The computer-readable media of claim 79 wherein the processing of the recovered second signal is non-linear.

82.   (Currently Amended) Computer-readable media embodying a program of instructions executable by a computer to perform a method of cancelling a far end echo from a near end signal, the method comprising:

estimating an energy level of the far end echo;

cancelling the echo from the near end signal, if the estimated energy level of the far end echo is above an audible level; [[and]]

bypassing the cancelling, if the estimated energy level of the far end echo is below the audible level; and

controlling convergence of an adaptive filter responsive to the estimated signal characteristics.

83.   (Previously Presented) The computer-readable media of claim 82 wherein the characteristic estimation comprises estimating a power level of the far end signal, and estimating an echo return loss between the far end signal and the near end signal, and wherein the echo is cancelled from the near end signal if the estimated power level of the far end signal minus the echo return loss is greater than a threshold.

84.   (Previously Presented) The computer-readable media of claim 82 wherein the characteristic estimation comprises estimating a power level of the far end signal, estimating an echo return loss between the far end signal and the near end signal, and estimating a power level of the near end signal, wherein the selection of whether to cancel the echo from the near end signal is based on the estimated power levels and the estimated echo return loss.

85.   (Previously Presented) The computer-readable media of claim 82 wherein the echo cancellation comprises adaptively filtering the far end signal and subtracting the filtered far end signal from the near end signal.

86.   (Previously Presented) The computer-readable media of claim 85 wherein the method further comprises selectively limiting filter adaptation, the selection of whether to limit the filter adaptation being based on the estimated characteristic.

87.   (Previously Presented) The computer-readable media of claim 86 wherein the filter adaptation is limited by disabling the filter adaptation.

88.   (Previously Presented) The computer-readable media of claim 82 wherein the characteristic estimation comprises estimating a power level of the far end signal, estimating an echo return loss between the far end signal and the near end signal, and estimating a power level for noise on the near end signal without the echo, and wherein the echo is canceled from the near end signal when the power level of the far end signal minus the echo return loss is greater than both a threshold of hearing and the power level for the noise minus about 10 dB.

89.   (Previously Presented) The computer-readable media of claim 85 wherein the characteristic estimation comprises estimating an echo return loss between the far end signal and the near end signal, and estimating an echo return loss enhancement between the near end signal and the near end signal without the echo, and wherein filter adaptation is a function of at least one of the echo return loss and echo return loss enhancement.

90.   (Previously Presented) The computer-readable media of claim 89 wherein the filter adaptation comprises using an adaptation step size of one-fourth when the echo return loss enhancement is in the range of 0-9 dBm.

91.   (Previously Presented) The computer-readable media of claim 89 wherein the filter adaptation comprises using an adaptation step size of 1/32 when a combination of the estimated echo return loss and the echo return loss enhancement is greater than 33-36 dB.

92.   (Previously Presented) The computer-readable media of claim 89 wherein the filter adaptation comprises using an adaptation step size of 1/16 when a combination of the estimated echo return loss and the echo return loss enhancement is in the range of 23-33 dB.

93.   (Previously Presented) The computer-readable media of claim 85 wherein the method further comprises detecting information in the near end signal, wherein the filter adaptation comprises limiting the filter adaptation when the information is detected and the filter adaptation is converged.

94.   (Previously Presented) The computer-readable media of claim 93 wherein the limiting of the filter adaption comprises disabling the filter adaption.

95.   (Previously Presented) The computer-readable media of claim 85 wherein the filter adaptation is limited when the filter adaptation has been active for a period longer than one second from an off hook transition of a telephony device connected between the far end signal and the near end signal.

96.   (Previously Presented) The computer-readable media of claim 85 wherein the filter adaptation is limited when the filter adaptation has been active for a period longer than one second after filter adaptation initialization.

97.   (Previously Presented) The computer-readable media of claim 93 wherein the filter adaptation comprises using an adaptation step size of 1/32 when the information is detected and the filter adaptation is not converged.

98.   (Previously Presented) The computer-readable media of claim 85 wherein the characteristic estimation further comprises estimating a power level of the far end signal, and estimating a power level for noise on the near end signal without the echo, and wherein the filter adaptation comprises using an adaptation step size of 1/4 when the estimated power level of the far end signal exceeds the estimated power level of the noise by at least 24 dB.

99.   (Previously Presented) The computer-readable media of claim 85 wherein the characteristic estimation comprises estimating a power level of the far end signal, and estimating a power level for noise on the near end signal without the echo, and wherein the filter adaptation comprises using an adaptation step size of 1/8 when the estimated power level of the far end signal exceeds the estimated power level of the noise by at least 18 dB.

100.   (Previously Presented) The computer-readable media of claim 85 wherein the characteristic estimation further comprises estimating a power level of the far end signal, and estimating a power level for noise on the near end signal without the echo, and wherein the filter adaptation comprises using an adaptation step size of 1/16 when the estimated power level of the far end signal exceeds the estimated power level of the noise by at least 9 dB.

101.   (Previously Presented) The computer-readable media of claim 82 wherein the method further comprises detecting information in the far end signal, detecting information in the near end signal, and processing the near end signal when information is detected in the far end signal and not in the near end signal.

102.   (Previously Presented) The computer-readable media of claim 101 wherein the near end is processed by attenuation.

103.   (Previously Presented) The computer-readable media of claim 101 wherein the processing of the near end signal is non-linear.

104.   (Previously Presented) The computer-readable media of claim 82 wherein the characteristic estimation comprises estimating a power level of the far end signal, estimating a power level of the near end signal, estimating a power level of a near end signal without the echo, estimating a power level of noise on the far end signal, and selectively non linear processing the near end signal, the selection as to whether to non linear process the near end signal being based on the estimated power levels.

105.   (Previously Presented) The computer-readable media of claim 104 wherein the method further comprises setting a first decision variable as a function of the estimated power level of the far end signal, setting a second decision variable as a function of the power level of the near end signal without the echo, setting a third decision variable as a function of the estimated power level of the far end signal and the near end signal without the echo, wherein the is near end signal is non linear processed when at least of the two decision variables meet a respective criteria.

106.   (Previously Presented) The computer-readable media of claim 105 wherein the first decision variable is set when the estimated power level of the far end signal is at least 6 dB greater than the estimated power level of the noise on the far end signal, and the estimated power level of the far end signal minus an estimated echo return loss between the far end signal and the near end signal is at least 6 dB greater larger than the estimated power level of the near end signal.

107.   (Previously Presented) The computer-readable media of claim 104 wherein the second decision variable is set when the estimated power level of the near end signal without the echo is at least 9 dB less than the estimated power level of the near end signal.

108.   (Previously Presented) The computer-readable media of claim 104 wherein the third decision variable is set when the estimated power level of the far end signal minus the estimated power level of the near end signal without the echo is greater than a threshold power level.

109.   (Currently Amended) A signal conditioner for conditioning a composite signal, the composite signal being formed by introducing at least a portion of a first signal into a second signal, comprising:

a first estimation means for estimating a signal characteristic of the first signal;

a second estimation means for estimating a signal characteristic of the composite signal;

canceller means for recovering the second signal from the composite signal, if the estimated signal characteristic of the first signal and of the composite signal are above a predetermined level; [[and]]

bypass means for enabling the cancelling means, if the estimated signal characteristic of the first signal and the composite signal are below the predetermined level; and

controlling means for controlling convergence of an adaptive filter responsive to the estimated signal characteristics.

110.   (Previously Presented) The signal conditioner of claim 109 further comprising means for estimating a maximum power level and an average power level of the first signal, and means for estimating a return loss between the first signal and the composite signal, wherein the bypass means enables the canceller means as a function of at least one of the estimated maximum power level, the estimated average power level, the estimated return loss.

111.   (Previously Presented) The signal conditioner of claim 110 wherein the bypass means enables the canceller means when the estimated maximum power level of the first signal minus the estimated return loss is greater than a threshold.

112.   (Previously Presented) The signal conditioner of claim 110 further comprising second means for estimating an average power level of the composite signal, wherein the means for estimating a return loss divides the estimated average power level of the first signal by the estimated average power level of the composite signal.

113.   (Previously Presented) The signal conditioner of claim 112 wherein the bypass means enables the canceller means when the estimated maximum power level of the first signal minus the estimated return loss is at least 8 dB greater than the estimated power level of the composite signal.

114.   (Previously Presented) The signal conditioner of claim 109 wherein the canceller means further comprises adaptive filter means for filtering the first signal, and means for subtracting the filtered first signal from the composite signal to recover the second signal.

115.   (Previously Presented) The signal conditioner of claim 114 further comprising means for suppressing the recovered second signal when information is detected in the first signal but not in the composite signal.

116.   (Previously Presented) The signal conditioner of claim 115 wherein the information includes voice.

117.   (Previously Presented) The signal conditioner of claim 115 wherein the means for suppressing the recovered second signal is non linear.

118.   (Previously Presented) The signal conditioner of claim 114 further comprising means for estimating a maximum power level of the first signal, means for estimating a noise power level for the recovered second signal, and means for estimating a return loss between the first signal and the composite signal, wherein the bypass means enables the canceller means when the estimated maximum power level of the first signal minus the estimated return loss is greater than both a threshold of hearing and the estimated power level of the noise of the recovered second signal minus 8 dB.

119.   (Previously Presented) The signal conditioner of claim 114 further comprising adjusting means for adjusting the adaptation of the adaptive filter means.

120.   (Previously Presented) The signal conditioner of claim 119 wherein the adjusting means limits the adaptation of the adaptive filter means when the bypass means does not enable the canceller means.

121.   (Previously Presented) The signal conditioner of claim 120 wherein the adjusting means limits the adaptive filter means by disabling the adaptation of the filter means.

122.   (Previously Presented) The signal conditioner of claim 119 further comprising return loss estimation means for estimating a return loss between the first signal and the composite signal and a return loss enhancement between the composite signal and the recovered second signal, the adjusting means adjusting the adaptation of the adaptive filter means as a function of the estimated return loss and the estimated return loss enhancement.

123.   (Previously Presented) The signal conditioner of claim 122 further comprising means for estimating a maximum power level and an average power level of the first signal, means for estimating average power level of the composite signal, and means for estimating an average power level and a noise power level for the recovered second signal, wherein the return

loss estimation means estimates the return loss and the return loss enhancement as a function of the estimated power levels.

124.   (Previously Presented) The signal conditioner of claim 123 wherein the return loss estimation means estimates the return loss by dividing the average power level of the first signal by the average power level of the composite signal.

125.   (Previously Presented) The signal conditioner of claim 123 wherein the return loss means estimates the return loss enhancement by dividing the average power of the composite signal by the average power of the recovered second signal.

126.   (Previously Presented) The signal conditioner of claim 123 wherein the adjusting means causes the adaptive filter means to have a filter adaptation step size of 1/4 when the estimated average power level of the first signal is 24 dB greater than the estimated power level of the noise of the recovered second signal.

127.   (Previously Presented) The signal conditioner of claim 123 wherein the adjusting means causes the adaptive filter means to have a filter adaptation step size of about 1/8 when the estimated average power level of the first signal is18 dB greater than the estimated power level of the noise on the recovered second signal.

128.   (Previously Presented) The signal conditioner of claim 123 wherein the adjusting means causes the adaptive filter means to have a filter adaptation step size of 1/16 when the estimated average power level of the first signal is 9 dB greater than the estimated power level of the noise on the recovered second signal.

129.   (Previously Presented) The signal conditioner of claim 122 wherein the adjusting means causes the adaptive filter means to have an adaptation step size of 1/16 when a

combination of the estimated return loss and the estimated return loss enhancement is in the range of about 23-33 dB.

130.   (Previously Presented) The signal conditioner of claim 122 wherein the adjusting means limits the adaptation of the adaptive filter means when information is detected in the composite signal and the adaptive filter means is converged.

131.   (Previously Presented) The signal conditioner of claim 130 wherein the information includes voice.

132.   (Previously Presented) The signal conditioner of claim 122 wherein the adjusting means limits the adaptation of the adaptive filter means when the adaptive filter means has been active for a period longer than one second after an off hook transition of a telephony device coupled between the first signal and the composite signal.

133.   (Previously Presented) The signal conditioner of claim 122 wherein the adjusting means limits the adaptation of the adaptive filter means when the adaptive filter means has been active for a period longer than one second after the adaptive filter means is initialized.

134.   (Previously Presented) The signal conditioner of claim 122 wherein the adjusting means causes the adaptive filter means to have an adaptation step size of 1/32 when information is detected in the composite signal and the adaptive filter means is not converged.

135.   (Previously Presented) The signal conditioner of claim 122 wherein the adjusting means causes the adaptive filter means to have an adaptation step size of one-fourth when the estimated return loss enhancement is in the range of 0-9 dBm.

136.   (Previously Presented) The signal conditioner of claim 122 wherein the adjusting means causes the adaptive filter means to have an adaptation step of 1/32 when a combination of the estimated return loss and the estimated return loss enhancement is greater than 33 dB.